LOWELL REGIONAL WASTEWATER UTILITY

WASTEWATER COLLECTION AND TREATMENT

MARK A. YOUNG
EXECUTIVE DIRECTOR

SERVING LOWELL
CHELMSFORD
DRACUT
TEWKSBURY
TYNGSBORO

March 13, 2020

RE: MA0100633

To Whom It May Concern:

The following is an itemization of status and improvements for the Lowell Regional Wastewater Utility during February 2020. Enclosed is a copy of the Discharge Monitoring Report, Down Stream Notification Reports, and required NPDES permit monitoring data for this period.

The Discharge Monitoring Report is being submitted electronically through the Environmental Protection Agency NetDMR website and also via email to the Massachusetts Department of Environmental Protection.

PERMIT EXCEEDANCES:

- There were no permit exceedances for the month of February 2020.

PROCESS CHANGES AND IMPROVEMENTS:

- Anoxic periods in the last cell of the aeration system have been disabled due to the fact that it is not currently needed for NO_3 control.
- Thickened Waste Pump No. 744 was replaced with a temporary progressive cavity pump on 6/14. This is being done as part of a new sludge pump technology trial.
- The sodium bisulfite feed system is being upgraded as part of the Phase 2B construction project. The system, including the pumps, was fully upgraded and brought online 1/10.
    - There have been operational and equipment issues associated with the new sodium bisulfite feed system since startup. These issues have resulted in the final Cl_2 residual spiking several times for short durations. This can be seen in the included final Cl_2 residual monitoring chart. The contractor is working to resolve the problems.
    - The new bisulfite feed system was turned off and operation of the old bisulfite feed system is being used until the new feed system issues are resolved.
- The Duck Island SCADA system is being upgraded as part of the Phase 2B construction project. This upgrade will enhance the control, automation, and data collection capabilities of the SCADA system.
    - The Utility has been in the process of transitioning to the new system, which went live on 9/27.

ODOR COMPLAINTS:

- There were no reported odor complaints during this period.

Respectfully,

Aaron Fox, Operations Manager
Lowell Regional Wastewater Utility
First St. Blvd. (Rt. 110)
Lowell MA 01850

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved.
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: LOWELL REGIONAL WW UTILITY
ADDRESS: 451 FIRST ST BLVD
LOWELL, MA 01850
FACILITY: LOWELL REGIONAL WW UTILITY
LOCATION: 451 FIRST ST BLVD
LOWELL, MA 01850
ATTN: AARON FOX, OPERATIONS MANAGER

MA0100633	035-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR MAILING ZIP CODE: 01850
MAJOR $
(SUBR E)
TREATED EFFLUENT
External Outfall

MONITORING PERIOD			
	MM/DD/YYYY		MM/DD/YYYY
FROM	02/01/2020	TO	02/29/2020

NO DISCHARGE

PARAMETER		QUANTITY OR LOADING				QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE 1	VALUE 2	VALUE 3	UNITS	VALUE 1	VALUE 2	VALUE 3	UNITS			
pH	SAMPLE MEASUREMENT	******	******	******	******	6.9	******	7.2	SU	0	01/01	GR
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	6.0 MINIMUM	******	8.3 MAXIMUM	SU		Daily	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	3,562	5,792	14,509	lb/d	13.5	20.12	35.6	mg/L	0	05/07	24
00530 1 0 Effluent Gross	PERMIT REQUIREMENT	8,006 MO AVG	12,010 WKLY AVG	Req. Mon. DAILY MX	lb/d	30 MO AVG	45 WKLY AVG	Req. Mon. DAILY MAX	mg/L		Weekdays	COMP24
Solids, total suspended	SAMPLE MEASUREMENT	56,041	******	******	lb/d	214.9	******	******	mg/L	0	05/07	24
00530 G 0 Raw Sewage Influent	PERMIT REQUIREMENT	Req. Mon. MO AVG	******	******	lb/d	Req. Mon. MO AVG	******	******	mg/L		Weekdays	COMP24
TSS % Removal	SAMPLE MEASUREMENT	******	******	******	******	94.8	******	******	%	0	01/30	CA
	PERMIT REQUIREMENT	******	******	******	******	85 MINIMUM	******	******	%		Monthly	CALC
Total Nitrogen	SAMPLE MEASUREMENT	******	******	******	******	18.49	******	******	mg/L	0	01/30	CA
Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. MO AVG	******	******	mg/L		Monthly	CALC
TKN	SAMPLE MEASUREMENT	******	******	******	******	17.80	******	******	mg/L	0	01/30	24
Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. MO AVG	******	******	mg/L		Monthly	COMP24
NO3,2-N	SAMPLE MEASUREMENT	******	******	******	******	0.69	******	******	mg/L	0	01/30	24
Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. MO AVG	******	******	mg/L		Monthly	COMP24
Phosphorus, total (as P)	SAMPLE MEASUREMENT	******	******	******	******	0.70	******	0.70	mg/L	0	01/30	24
00665 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. MO AVG	******	Req. Mon. DAILY MX	mg/L		Monthly	COMP24

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE
AARON FOX OPERATIONS SUPERINTENDENT	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.		978 674-4248	03/12/2020
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved.
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: LOWELL REGIONAL WW UTILITY
ADDRESS: 451 FIRST ST BLVD
LOWELL, MA 01850
FACILITY: LOWELL REGIONAL WW UTILITY
LOCATION: 451 FIRST ST BLVD
LOWELL, MA 01850
ATTN: AARON FOX, OPERATIONS MANAGER

MA0100633	035-A
PERMIT NUMBER	**DISCHARGE NUMBER**

DMR MAILING ZIP CODE: 01850
MAJOR $
(SUBR E)
TREATED EFFLUENT
External Outfall

MONITORING PERIOD			
MM/DD/YYYY		**MM/DD/YYYY**
02/01/2020	**TO**	02/29/2020

FROM

NO DISCHARGE

PARAMETER		**QUANTITY OR LOADING**				**QUALITY OR CONCENTRATION**				**NO. EX**	**FREQUENCY OF ANALYSIS**	**SAMPLE TYPE**
		VALUE 1	**VALUE 2**	**VALUE 3**	**UNITS**	**VALUE 1**	**VALUE 2**	**VALUE 3**	**UNITS**			
Flow, in conduit or thru treatment plan	SAMPLE MEASUREMENT	27.98	29.26	48.87	MGD	******	******	******	******	0	99/99	RC
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	32 12MO AVG	Req. Mon MO AVG	Req. Mon. DAILY MX	MGD	******	******	******	******		Continuous	RCORDR
Chlorine, total residual	SAMPLE MEASUREMENT	******	******	******	******	36.55	******	270	mcg/L	0	01/01	GR
50060 1 0 Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	196 MO AVG	******	338 DAILY MX	mcg/L		Daily	GRAB
Chlorine, total residual	SAMPLE MEASUREMENT	******	******	******	******	426.55	******	2000	mcg/L	0	99/99	RC
50060 0 0 Intake	PERMIT REQUIREMENT	******	******	******	******	Req. Mon. MO AVG	******	Req. Mon. DAILY MX	mcg/L		Continuous	RCORDR
Ecoli	SAMPLE MEASUREMENT	******	******	******	******	8.20	******	330	cfu/100mL	0	05/07	GR
Effluent Gross	PERMIT REQUIREMENT	******	******	******	******	126 MO GEO	******	409 DAILY MX	cfu/100mL		Weekdays	GRAB
BOD, carbonaceous, 05 day, 20C	SAMPLE MEASUREMENT	2,784	4,335	7,581	lb/d	10.8	17.10	18.6	mg/L	0	05/07	24
80082 1 0 Effluent Gross	PERMIT REQUIREMENT	6,672 MO AVG	10,675 WKLY AVG	Req. Mon. DAILY MX	lb/d	25 MO AVG	40 WKLY AVG	Req. Mon. DAILY MX	mg/L		Weekdays	COMP24
BOD, carbonaceous, 05 day, 20C	SAMPLE MEASUREMENT	47,839	******	******	lb/d	179.2	******	******	mg/L	0	05/07	24
80082 G 0 Raw Sewage Influent	PERMIT REQUIREMENT	Req. Mon. MO AVG	******	******	lb/d	Req. Mon. MO AVG	******	******	mg/L		Weekdays	COMP24
BOD % Removal	SAMPLE MEASUREMENT	******	******	******	******	95.7	******	******	%	0	01/30	CA
Effluent	PERMIT REQUIREMENT	******	******	******	******	85 MINIMUM	******	******	%		Monthly	CALC

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE
AARON FOX OPERATIONS SUPERINTENDENT	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.		978 674-4248		03/12/2020
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	MM/DD/YYYY

Lowell Regional Wastewater Utility

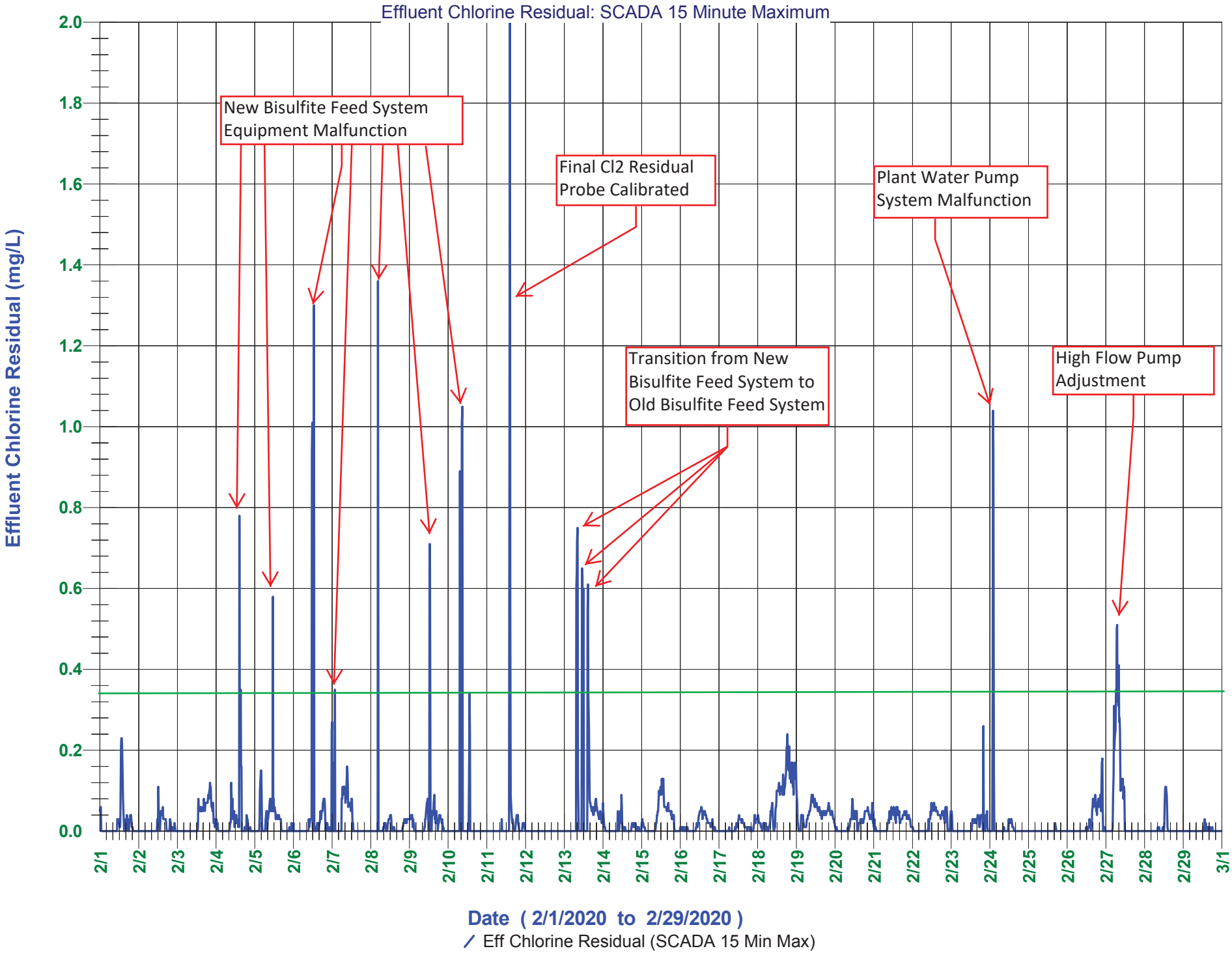
NPDES Report (Permit NO. MA0100633)

Printed on Thu Mar 12 2020

February 2020

Date	Plant Effluent Flow			D.O.	Chlorine Residual	Chlorine Residual Continuous Recording		Plant Effluent pH			E-coli	Effluent CBOD			Effluent TSS		
	Total (MG)	Max. Hourly (MGD)	Min. Hourly (MGD)	Grab (mg/L)	Grab (mg/L)	Avg. (mg/L)	Max. (mg/L)	Min.	Max.	Grab	(cfu/ 100 ml)	(mg/L)	(lbs)	(% Rem)	(mg/L)	(lbs)	(% Rem)
01-Sat	27.38	33.62	19.68	8.2	0.01	0.01	0.23	6.8	6.9	7.1							
02-Sun	27.60	34.68	19.58	8.4	0.01	0.00	0.11	6.8	7.0	7.2		2.5	575.4	98.90	7.4	1,703.1	**97.30**
03-Mon	26.43	31.28	18.98	8.1	0.00	0.02	0.12	6.8	7.0	7.1	4	4.9	1,080.1	97.52	5.7	1,256.4	**96.15**
04-Tue	20.88	30.62	18.94	8.4	0.09	0.01	0.78	6.8	6.9	7.0	4	4.3	748.8	98.26	5.9	1,027.4	**96.72**
05-Wed	25.81	29.56	19.85	8.6	0.00	0.02	0.58	6.8	6.9	7.0	4	4.8	1,033.1		5.8	1,248.4	
06-Thu	28.59	36.49	18.39	8.2	0.00	0.02	1.30	6.8	6.9	7.1	6	5.8	1,382.8		7.5	1,788.1	
07-Fri	40.69	77.03	21.04	8.1	0.11	0.02	0.35	6.8	6.9	7.1	4						
08-Sat	27.49	33.93	20.23	8.3	0.08	0.01	1.36	6.8	7.0	7.1							
09-Sun	27.04	33.69	18.45	8.8	0.00	0.01	0.71	6.9	7.0	7.1		16.0	3,608.1	87.87	22.4	5,051.3	**85.44**
10-Mon	31.42	52.18	21.39	8.9	0.00	0.01	1.05	6.9	7.1	7.1	24	16.3	4,270.8		17.4	4,559.0	
11-Tue	29.07	38.21	20.92	8.3	0.00	0.02	2.00	6.8	6.9	7.0	330	18.2	4,412.9		18.4	4,461.4	
12-Wed	28.13	32.09	21.07	8.0	0.00	0.00	0.00	6.8	7.0	7.0	6	16.4	3,847.0	91.41	15.8	3,706.2	**86.08**
13-Thu	35.70	51.09	21.76	8.1	0.00	0.06	0.75	6.5	7.0	6.9	26	18.6	5,537.9		23.6	7,026.6	
14-Fri	28.12	31.75	22.35	8.3	0.27	0.00	0.09	6.8	7.0	7.0	3						
15-Sat	26.99	33.09	18.89	8.4	0.00	0.02	0.13	6.8	6.9	7.0							
16-Sun	27.70	35.38	19.66	8.5	0.01	0.01	0.06	6.8	6.9	7.1		5.3	1,224.3	96.00	6.6	1,524.6	**95.24**
17-Mon	27.44	32.38	19.59	8.2	0.03	0.01	0.04	6.9	7.0	7.1		5.2	1,189.9	96.01	5.6	1,281.4	**96.68**
18-Tue	37.08	79.07	19.71	8.7	0.01	0.06	0.24	6.8	7.0	6.9	6	15.9	4,917.0		14.6	4,515.0	
19-Wed	29.66	40.13	23.38	8.9	0.00	0.03	0.11	6.8	6.9	7.0	3	5.6	1,385.4	96.35	6.5	1,608.1	**98.33**
20-Thu	27.15	30.79	19.91	8.6	0.12	0.02	0.08	6.8	7.0	7.1	5	6.2	1,404.1	97.89	6.7	1,517.3	**97.69**
21-Fri	26.46	30.09	19.23	8.7	0.01	0.02	0.06	6.9	7.0	7.0	0						
22-Sat	26.99	32.74	19.14	8.5	0.02	0.02	0.07	6.9	7.0	7.0	1						
23-Sun	26.85	34.11	18.62	8.6	0.02	0.01	0.26	6.7	7.0	7.1		5.9	1,321.3	97.28	10.6	2,373.9	**96.74**
24-Mon	25.27	30.57	19.55	10.1	0.02	0.02	1.04	6.8	7.1	7.0	16	13.4	2,823.6	94.71	16.8	3,540.1	**96.22**
25-Tue	25.99	29.14	22.55	8.9	0.00	0.00	0.02	7.0	7.1	7.1	22	15.6	3,381.4		16.6	3,598.2	
26-Wed	28.21	32.81	22.54	8.4	0.00	0.02	0.18	6.9	7.0	7.0	36	16.8	3,952.3		21.0	4,940.3	
27-Thu	48.87	94.98	23.10	9.0	0.10	0.05	0.51	6.7	7.0	7.0	147	18.6	7,580.8		35.6	14,509.4	
28-Fri	29.61	32.59	23.48	8.5	0.13	0.01	0.11	6.8	6.9	6.9	2						
29-Sat	30.08	37.95	21.23	8.6	0.02	0.00	0.03	6.8	7.0	6.9							
Min	20.88	29.14	18.39	8.0	0.00	0.00	0.00	6.5	6.9	6.9	0	2.5	575	87.9	5.6	1,027	85.4
Max	48.87	94.98	23.48	10.1	0.27	0.06	2.00	7.0	7.1	7.2	330	18.6	7,581	98.9	35.6	14,509	98.3
Avg	29.27	39.73	20.46	8.5	0.04	0.018	0.43				32	10.8	2,784	95.7	13.5	3,562	94.8
Total	848.67										8		55,677			71,236	

Lowell Regional Wastewater Utility - MA0100633



Effluent Chlorine Residual

Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

Date of Event:
Fri, Feb 7, 2020

Dear Environmental Professionals and Interested Parties:

This report describes high-flow treatment performed at Lowell's Duck Island Clean Water Facility, as well as discharges of untreated Combined Sewer Overflows (CSOs) at the Utility's diversion structures.

High-flow treatment refers to combined stormwater and sewage that receives screening and clarification before being mixed with water receiving biological treatment. This mixture is then disinfected and discharged into the Merrimack River in full compliance with secondary treatment standards.

CSO diversions are an untreated mixture of stormwater and dilute sewage that is discharged directly into nearby receiving waters when the capacity of the treatment and transport systems are exceeded as a result of heavy rain. These diversions occur only when necessary to protect public health and safety.

Please refer to the final two pages of this report for an explanation of terms.

Wastewater Flow to Duck Island		
Daily Flow Rate (MGD)	Peak Hourly Flow Rate (MGD)	Instantaneous Peak Flow Rate (MGD)
43.02	81.40	93.74

	Rainfall			
	Daily Rainfall (in)	Duration Total (hr)	Max Hourly Rainfall (in/hr)	Peak Intensity (in/15-min)
River's Edge	0.23	6	0.06	0.03
Warren	0.65	10	0.14	0.10

Rain data may be inaccurate during cold weather

High-Flow Treatment Summary	
Duration (Minutes)	Volume (MG)
305	6.90

Combined Sewer Overflows Summary	
Duration (Minutes)	Volume (MG)
0	

Person Reporting Event: Gorden Bergeron - Lowell Water Engineering

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Fri, Feb 7, 2020

High-Flow Treatment Duck Island			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			
04:00			
05:00			
06:00			0.01
07:00			
08:00			
09:00			
10:00			0.01
11:00			0.14
12:00			0.14
13:00	13	0.87	0.07
14:00	60	1.32	0.07
15:00	60	1.26	0.07
16:00	60	1.22	0.11
17:00	60	1.29	0.02
18:00	45	0.82	0.01
19:00	7	0.12	
20:00			
21:00			
22:00			
23:00			
24:00			

Barasford Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Beaver Brook Station Diversion to Beaver Brook		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

High-Flow Treatment Duck Island			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	305	6.90	0.65

Barasford Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Beaver Brook Station To Beaver Brook		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:

Fri, Feb 7, 2020

Merrimack Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Read Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Tilden Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Merrimack Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Read Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Tilden Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Fri, Feb 7, 2020

Walker Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Warren Station Diversion to Concord River			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			
04:00			
05:00			
06:00			0.01
07:00			
08:00			
09:00			
10:00			0.01
11:00			0.14
12:00			0.14
13:00			0.07
14:00			0.07
15:00			0.07
16:00			0.11
17:00			0.02
18:00			0.01
19:00			
20:00			
21:00			
22:00			
23:00			
24:00			

West Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Walker Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Warren Station To Concord River			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	0		0.65

West Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

Date of Event:
Fri, Feb 7, 2020

Definitions and Abbreviations:

Flow Reporting Terms:

MG:
Volume in million gallons,
(e.g. 2 MG = 2 million gallons)

MGD:
Flow rate in million gallons per day (e.g. a rate of 1 MGD sustained for 1 day would result in a volume of 1 MG)

Daily Flow Rate, million gallons per day (MGD):
Million gallons of flow treated at Duck Island

Peak Hourly Flow Rate (MGD):
The highest flow rate treated at Duck Island over a rolling one-hour period

Instantaneous Peak Flow Rate (MGD):
The highest flow rate treated at Duck Island at any moment of the day

Duration (Minutes):
Number of minutes in a given hour or over the course of the day a flow was measured

Weather Reporting Terms:

Rainfall Measurement:
Rainfall is measured by Lowell's network of rain gauges

Daily Rainfall, inches (in):
The total depth of rainfall measured by each rain gauge over the course of the day

Maximum Hourly Rainfall (in/hr):
The greatest total depth of rainfall measured by a rain gauge in one hour

Peak Intensity, inches per 15 minutes (in/15-min):
The greatest total depth of rainfall received in any 15-minute period.

Duration (Hour):
The number of hours in the day during which it rained.

Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

Date of Event:
Mon, Feb 10, 2020

Dear Environmental Professionals and Interested Parties:

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High-flow treatment refers to combined stormwater and sewage that receives screening and clarification before being mixed with water receiving biological treatment. This mixture is then disinfected and discharged into the Merrimack River in full compliance with secondary treatment standards.

CSO diversions are an untreated mixture of stormwater and dilute sewage that is discharged directly into nearby receiving waters when the capacity of the treatment and transport systems are exceeded as a result of heavy rain. These diversions occur only when necessary to protect public health and safety.

Please refer to the final two pages of this report for an explanation of terms.

Wastewater Flow to Duck Island		
Daily Flow Rate (MGD)	Peak Hourly Flow Rate (MGD)	Instantaneous Peak Flow Rate (MGD)
33.31	62.03	63.99

	Rainfall			
	Daily Rainfall (in)	Duration Total (hr)	Max Hourly Rainfall (in/hr)	Peak Intensity (in/15-min)
River's Edge	0.16	7	0.08	0.02
Warren	0.16	8	0.07	0.02

Rain data may be inaccurate during cold weather

High-Flow Treatment Summary	
Duration (Minutes)	Volume (MG)
68	1.13

Combined Sewer Overflows Summary	
Duration (Minutes)	Volume (MG)
0	

Person Reporting Event: Gorden Bergeron - Lowell Water Engineering

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Mon, Feb 10, 2020

High-Flow Treatment Duck Island			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			0.01
04:00			0.01
05:00			0.01
06:00			
07:00			
08:00			0.01
09:00			0.01
10:00			0.03
11:00			0.07
12:00	20	0.67	0.01
13:00	48	0.46	
14:00			
15:00			
16:00			
17:00			
18:00			
19:00			
20:00			
21:00			
22:00			
23:00			
24:00			

Barasford Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Beaver Brook Station Diversion to Beaver Brook		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

High-Flow Treatment Duck Island			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	68	1.13	0.16

Barasford Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Beaver Brook Station To Beaver Brook		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:

Mon, Feb 10, 2020

Merrimack Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Read Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Tilden Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Merrimack Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Read Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Tilden Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

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Date of Event:
Mon, Feb 10, 2020

Walker Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Warren Station Diversion to Concord River			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			0.01
04:00			0.01
05:00			0.01
06:00			
07:00			
08:00			0.01
09:00			0.01
10:00			0.03
11:00			0.07
12:00			0.01
13:00			
14:00			
15:00			
16:00			
17:00			
18:00			
19:00			
20:00			
21:00			
22:00			
23:00			
24:00			

West Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Walker Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Warren Station To Concord River			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	0		0.16

West Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

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Mon, Feb 10, 2020

Definitions and Abbreviations:

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Peak Intensity, inches per 15 minutes (in/15-min):
The greatest total depth of rainfall received in any 15-minute period.

Duration (Hour):
The number of hours in the day during which it rained.

Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

Date of Event:
Thu, Feb 13, 2020

Dear Environmental Professionals and Interested Parties:

This report describes high-flow treatment performed at Lowell's Duck Island Clean Water Facility, as well as discharges of untreated Combined Sewer Overflows (CSOs) at the Utility's diversion structures.

High-flow treatment refers to combined stormwater and sewage that receives screening and clarification before being mixed with water receiving biological treatment. This mixture is then disinfected and discharged into the Merrimack River in full compliance with secondary treatment standards.

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Wastewater Flow to Duck Island		
Daily Flow Rate (MGD)	Peak Hourly Flow Rate (MGD)	Instantaneous Peak Flow Rate (MGD)
37.51	56.39	59.00

	Rainfall			
	Daily Rainfall (in)	Duration Total (hr)	Max Hourly Rainfall (in/hr)	Peak Intensity (in/15-min)
River's Edge	0.57	12	0.15	0.04
Warren	0.42	13	0.08	0.02

Rain data may be inaccurate during cold weather

High-Flow Treatment Summary	
Duration (Minutes)	Volume (MG)
123	0.78

Combined Sewer Overflows Summary	
Duration (Minutes)	Volume (MG)
0	

Person Reporting Event: Gorden Bergeron - Lowell Water Engineering

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Thu, Feb 13, 2020

High-Flow Treatment Duck Island			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			
04:00			0.01
05:00			
06:00			
07:00			
08:00			
09:00			
10:00			
11:00	28	0.05	
12:00	60	0.37	
13:00	35	0.36	0.01
14:00			0.06
15:00			0.08
16:00			0.07
17:00			0.05
18:00			0.03
19:00			0.03
20:00			0.03
21:00			0.02
22:00			0.01
23:00			0.01
24:00			0.01

Barasford Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
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14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Beaver Brook Station Diversion to Beaver Brook		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

High-Flow Treatment Duck Island			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	123	0.78	0.42

Barasford Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Beaver Brook Station To Beaver Brook		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

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Thu, Feb 13, 2020

Merrimack Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Read Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
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14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Tilden Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Merrimack Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Read Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Tilden Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Thu, Feb 13, 2020

Walker Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Warren Station Diversion to Concord River			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			
04:00			0.01
05:00			
06:00			
07:00			
08:00			
09:00			
10:00			
11:00			
12:00			
13:00			0.01
14:00			0.06
15:00			0.08
16:00			0.07
17:00			0.05
18:00			0.03
19:00			0.03
20:00			0.03
21:00			0.02
22:00			0.01
23:00			0.01
24:00			0.01

West Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Walker Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Warren Station To Concord River			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	0		0.42

West Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

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Definitions and Abbreviations:

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Maximum Hourly Rainfall (in/hr):
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Peak Intensity, inches per 15 minutes (in/15-min):
The greatest total depth of rainfall received in any 15-minute period.

Duration (Hour):
The number of hours in the day during which it rained.

Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

Date of Event:
Tue, Feb 18, 2020

Dear Environmental Professionals and Interested Parties:

This report describes high-flow treatment performed at Lowell's Duck Island Clean Water Facility, as well as discharges of untreated Combined Sewer Overflows (CSOs) at the Utility's diversion structures.

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Wastewater Flow to Duck Island		
Daily Flow Rate (MGD)	Peak Hourly Flow Rate (MGD)	Instantaneous Peak Flow Rate (MGD)
39.32	82.79	92.81

	Rainfall			
	Daily Rainfall (in)	Duration Total (hr)	Max Hourly Rainfall (in/hr)	Peak Intensity (in/15-min)
River's Edge	0.44	10	0.09	0.03
Warren	0.44	9	0.10	0.04

Rain data may be inaccurate during cold weather

High-Flow Treatment Summary	
Duration (Minutes)	Volume (MG)
266	4.55

Combined Sewer Overflows Summary	
Duration (Minutes)	Volume (MG)
0	

Person Reporting Event: Gorden Bergeron - Lowell Water Engineering

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Tue, Feb 18, 2020

High-Flow Treatment Duck Island			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			
04:00			
05:00			
06:00			
07:00			
08:00			
09:00			
10:00			
11:00			
12:00			
13:00			0.04
14:00			
15:00			0.03
16:00			0.01
17:00			0.05
18:00			0.07
19:00	10	0.54	0.08
20:00	60	0.87	0.10
21:00	60	1.27	0.04
22:00	60	1.10	0.02
23:00	56	0.65	
24:00	20	0.12	

Barasford Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Beaver Brook Station Diversion to Beaver Brook		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

High-Flow Treatment Duck Island			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	266	4.55	0.44

Barasford Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Beaver Brook Station To Beaver Brook		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

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Merrimack Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
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15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Read Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
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15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Tilden Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Merrimack Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Read Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Tilden Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

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Walker Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Warren Station Diversion to Concord River			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			
04:00			
05:00			
06:00			
07:00			
08:00			
09:00			
10:00			
11:00			
12:00			
13:00			0.04
14:00			
15:00			0.03
16:00			0.01
17:00			0.05
18:00			0.07
19:00			0.08
20:00			0.10
21:00			0.04
22:00			0.02
23:00			
24:00			

West Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Walker Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Warren Station To Concord River			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	0		0.44

West Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

Date of Event:
Tue, Feb 18, 2020

Definitions and Abbreviations:

Flow Reporting Terms:

MG:
Volume in million gallons,
(e.g. 2 MG = 2 million gallons)

MGD:
Flow rate in million gallons per day (e.g. a rate of 1 MGD sustained for 1 day would result in a volume of 1 MG)

Daily Flow Rate, million gallons per day (MGD):
Million gallons of flow treated at Duck Island

Peak Hourly Flow Rate (MGD):
The highest flow rate treated at Duck Island over a rolling one-hour period

Instantaneous Peak Flow Rate (MGD):
The highest flow rate treated at Duck Island at any moment of the day

Duration (Minutes):
Number of minutes in a given hour or over the course of the day a flow was measured

Weather Reporting Terms:

Rainfall Measurement:
Rainfall is measured by Lowell's network of rain gauges

Daily Rainfall, inches (in):
The total depth of rainfall measured by each rain gauge over the course of the day

Maximum Hourly Rainfall (in/hr):
The greatest total depth of rainfall measured by a rain gauge in one hour

Peak Intensity, inches per 15 minutes (in/15-min):
The greatest total depth of rainfall received in any 15-minute period.

Duration (Hour):
The number of hours in the day during which it rained.

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Thu, Feb 27, 2020

Dear Environmental Professionals and Interested Parties:

This report describes high-flow treatment performed at Lowell's Duck Island Clean Water Facility, as well as discharges of untreated Combined Sewer Overflows (CSOs) at the Utility's diversion structures.

High-flow treatment refers to combined stormwater and sewage that receives screening and clarification before being mixed with water receiving biological treatment. This mixture is then disinfected and discharged into the Merrimack River in full compliance with secondary treatment standards.

CSO diversions are an untreated mixture of stormwater and dilute sewage that is discharged directly into nearby receiving waters when the capacity of the treatment and transport systems are exceeded as a result of heavy rain. These diversions occur only when necessary to protect public health and safety.

Please refer to the final two pages of this report for an explanation of terms.

Wastewater Flow to Duck Island		
Daily Flow Rate (MGD)	Peak Hourly Flow Rate (MGD)	Instantaneous Peak Flow Rate (MGD)
49.81	96.83	105.06

	Rainfall			
	Daily Rainfall (in)	Duration Total (hr)	Max Hourly Rainfall (in/hr)	Peak Intensity (in/15-min)
River's Edge	0.79	7	0.21	0.07
Warren	0.85	8	0.24	0.07

Rain data may be inaccurate during cold weather

High-Flow Treatment Summary	
Duration (Minutes)	Volume (MG)
383	14.73

Combined Sewer Overflows Summary	
Duration (Minutes)	Volume (MG)
163	5.97

Person Reporting Event: Gorden Bergeron - Lowell Water Engineering

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Thu, Feb 27, 2020

High-Flow Treatment Duck Island

Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			0.01
04:00			0.14
05:00			0.18
06:00	41	1.40	0.24
07:00	60	2.22	0.18
08:00	60	2.36	0.05
09:00	60	2.64	0.04
10:00	60	2.61	0.01
11:00	60	2.30	
12:00	42	1.20	
13:00			
14:00			
15:00			
16:00			
17:00			
18:00			
19:00			
20:00			
21:00			
22:00			
23:00			
24:00			

Barasford Station Diversion to Merrimack River

Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00	44	0.07
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Beaver Brook Station Diversion to Beaver Brook

Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

High-Flow Treatment Duck Island

24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	383	14.73	0.85

Barasford Station To Merrimack River

24 Hour	Total Duration (Minutes)	Total Volume (MG)
	44	0.07

Beaver Brook Station To Beaver Brook

24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Thu, Feb 27, 2020

Merrimack Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00	10	0.23
07:00	60	1.80
08:00	51	0.67
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Read Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Tilden Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Merrimack Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	121	2.70

Read Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Tilden Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Lowell Wastewater Utility

Downstream Notification Report

NPDES Permit No: MA0100633

Date of Event:
Thu, Feb 27, 2020

Walker Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Warren Station Diversion to Concord River			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			0.01
04:00			0.14
05:00			0.18
06:00			0.24
07:00			0.18
08:00			0.05
09:00			0.04
10:00			0.01
11:00			
12:00			
13:00			
14:00			
15:00			
16:00			
17:00			
18:00			
19:00			
20:00			
21:00			
22:00			
23:00			
24:00			

West Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00	45	1.30
08:00	60	1.50
09:00	33	0.40
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Walker Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Warren Station To Concord River			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	0		0.85

West Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	138	3.20

Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

Date of Event:
Thu, Feb 27, 2020

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